

REMARKS/ARGUMENTS

Claims 1-17 have been canceled. New Claims 18-35 are active in the case.

Reconsideration is respectfully requested.

The present invention relates to a method of producing light polarizing films.

Specification Amendments

The specification has been amended in order to make minor spelling corrections thereto. Entry of the amendments into the record is respectfully requested.

Claim Amendments

New Claims 18-34 are supported by the original claims. New Claim 35 is supported by page 5 of the text of the application. Entry of the new claims into the record is respectfully requested.

Invention

The present invention is directed to a continuous method for producing polarizing films by monoaxially stretching a polyvinyl alcohol film having a width of at least 2 m in an aqueous boric acid solution. The polyvinyl alcohol film is stretched under the following conditions:

$$A \geq 5 \text{ (m)} \quad (1)$$

$$A/B \geq 0.5 \text{ (min)} \quad (2)$$

wherein A indicates the stretching distance (m), and B indicates the stretched film speed (m/min).

Prior Art Rejection

Claims 1-17 stand rejected based on 35 USC 103(a) as obvious over Racich et al, U. S. Patent 4,591,512 in view of Sanefuji et al, U. S. Patent Publication 2002/0001700. This ground of rejection is respectfully traversed.

The Racich et al patent is relevant prior art to the present invention because it discloses polyvinyl alcohol films that function as dichroic polarizers. However, the process disclosed in the reference for preparing the polarizers is different from that of the present invention. The disclosure of the patent in column 2 describes an initial uniaxial stretching of a PVA film by a factor of 2.5 to 4 times in a hot air oven at a temperature of about 125° C. The film initially having a width of 0.94 meters is reduced in width to about 0.533 meters. This “dry” stretching of a PVA film is not the stretching step of the present process that occurs in an aqueous boric acid bath. Note that the patent then teaches that an approximately 0.254 m width of PVA film is “cut from the center of the sheet.” It is this material that is the starting PVA film material for further processing in the method of the patent. As the Examiner has noted, this width is well less than the 2 meter width requirement of the present invention, and is not just a trivial difference between the method of the reference and the method of the present invention. As noted on page 5 of the specification, when PVA films that have a width of at least 2 m are monoaxially stretched in an ordinary manner, the polarizing properties of the resulting polarizing films are inferior to those of polarizing films having a narrower width. On the other hand, when PVA films that have a width of at least 2 m are processed by the method of the present invention, the resulting polarizing films have significantly improved polarizing properties. Thus, the selection of a width of the unstretched PVA film is not just a trivial matter as made-out by the Examiner at page 2, lines 12-13 of the last paragraph of the Office Action.

In addition to the very substantial difference discussed above between the present invention and the disclosure of Racich et al, there is absolutely no teaching or suggestion of conducting the monoaxial stretching of a PVA film in an aqueous boric acid bath where the stretching distance (meters) of the PVA film is at least 5 (requirement A) and the stretched film speed (B) in units of meters/min over a roller is such that the value of the ratio of A (stretching distance) to B (film speed) must be equal to or greater than 0.5 (min). The Examiner performs a calculation as set forth in the middle of the paragraph on page 2 of the Office Action and concludes that the A/B ratio of the present claims is met by the disclosure of the patent at column 4, lines 25-31. However, it is not clear to applicants how the stated conclusion is reached. Accordingly, applicants submit that the cited reference clearly does not suggest the present invention.

The disclosure of Sanefuji et al is also relevant to the present invention because it discloses polarizing films that are obtained from PVA films. However, the key feature of the reference for the processing of a film of PVA into a light polarizing film is that the polarizing film is obtained by casting a film material onto a drum, whereby the film that is obtained has a thickness within the range of 20 to 150 μm , a width of at least 2 m and a variance in thickness along the TD direction of the film of 0.5 $\mu\text{m}/\text{mm}$ or less. Accordingly, it is clear that the inventive feature of the reference is not that at all of the present invention. In fact, there is no teaching or suggestion of the present invention which requires a PVA film of at least 2 m in width being stretched in an aqueous boric acid bath under the two specified conditions of a film stretching distance of at least 5 m and a stretching distance/stretched film speed ratio of at least 5 min. There is absolutely no disclosure in the reference that would lead one of skill in the art to the features of the present claims. Accordingly, the present invention is clearly patentably distinguished over the combined prior art and withdrawal of the obviousness ground of rejection is respectfully requested.

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It is believed that the application is in condition for allowance. Early notice to this effect is earnestly solicited.

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